Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): An positional information transmission method of transmitting positional information from a transmission side to a reception side provided with a digital map, comprising the steps of:

forming, on the transmission side, position codes based on object road shape data of a transmission object road and assistance shape data of a road to be connected to the object road; and

transmitting the position codes from the transmission side to the reception side.

Claim 2 (original): A positional information transmission method according to Claim 1, further comprising:

a step of adding the object road shape data and connection positional information of the assistance shape data to the position codes.

Claim 3 (original): A positional information transmission method according to Claim 2,

wherein the connection positional information is expressed with a number of points constituting the object road shape data.

Claim 4 (original): A positional information transmission method according to Claim 1, further comprising:

the step of adding attribute information for discriminating the object road shape data and the assistance shape data to at least one of the object road shape data and the assistance shape data.

Claim 5 (original): A positional information transmission method according to Claim 1, further comprising:

the step of adding road attribute information of the assistance shape data to the position codes.

Claim 6 (original): A positional information transmission method according to Claim 1,

wherein at least one of a road type, a link type, a road number, a road name, a passing direction, an altitude, a road opening year is used as road attribute information of the assistance shape data.

Claim 7 (original): A positional information decoding method of decoding positional information of a digital map, comprising the steps of:

receiving position codes including object road shape data of a transmission object road and assistance shape data of a road to be connected to the object road; and

specifying the object road on the digital map with reference to the object road shape data and the assistance shape data.

Claim 8 (original): A positional information decoding method according to Claim 7,

wherein the step of specifying the object road on the digital map includes steps of:

deciding a similarity of shapes of the object road shape data and the assistance shape data, to an object road candidate for the object road shape data and an assistance candidate for the assistance shape data; and

finally selecting the object road candidate for the object road on the basis of the result of decision.

Claim 9 (original): A positional information decoding method according to Claim 8,

wherein the step of specifying the object road on the digital map includes steps of:

searching a point corresponding to a connection position between the object road shape data and the assistance shape data, on the digital map; and

correcting a position of an object correlated to one of the object road shape data and the assistance shape data, with reference to the position of the point.

Claim 10 (original): A positional information decoding method according to Claim 7,

wherein the step of specifying the object road on the digital map includes the step of:

correcting, in case at least a partial section of the object road shape data is absent on the digital map, a position or shape of the absent section of the object road shape data, with reference to the assistance shape data.

Claim 11 (original): A positional information creation method of creating the position informational of a digital map, comprising the steps of:

creating object road shape data which is shape data of a transmission object road; and

adding assistance shape data which shape data of a connection road to be connected to the object road, to the object road shape data thereby to create position codes.

Claim 12 (original): A positional information creation method according to Claim 11,

wherein the assistance shape data are added to the object road shape data, in case a connection angle between the connection road and the object road is within a predetermined angle or in case the shape of the connection road from the connection position to a predetermined position and the shape of the object road are parallel and similar to each other.

Claim 13 (original): A positional information creation method according to Claim 11,

wherein the assistance shape data are added to the object road shape data in case another parallel and similar road is present in the periphery of the object road.

Claim 14 (original): A positional information creation method according to Claim 13, further comprising the step of:

discriminating the connection road with at least one of connection position, shape and attribute thereof.

Claim 15 (original): A positional information creation method according to Claim 11, further comprising the step of:

incorporating, in case the object road includes a section having a high probability of being absent from a position codes transmission destination, the connection road to be connected to the section and having a high probability of being present in the transmission destination, as assistance shape data into position codes.

Claim 16 (original): A positional information creation method according to Claim 15, further comprising the step of:

discriminating the probability of the object road being present at the transmission destination, with the opening year of the road.

Claim 17 (original): A positional information creation method according to Claim 15, further comprising the step of:

discriminating the probability of the object road being present at the transmission destination, with the type of the road.

Claim 18 (original): A positional information decoding method of decoding positional information of a digital map, comprising the steps of:

receiving position codes composed of object road shape data of a transmission object road and assistance shape data of a road to be connected to the object road;

separating the object road shape data and the assistance shape data; and

specifying the object road on the digital map with reference to the object road shape data.

Claim 19 (original): A positional information specifying method of using information, which includes at least shape data of a road and assistance shape data of a road to be connected to the road, to specify a position on a digital map on a reception side.

Claim 20 (original): A positional information transmission method of transmitting positional information from a transmission side to a reception side provided with a digital map, comprising the steps of:

(A) creating, on the transmission side, object road shape data of a transmission object road and a branch shape data of a branch intersecting with or branching from the object road;

(B) transmitting the object road shape data and the branch shape data from the transmission side to the reception side; and

(C) specifying, on the reception side, the object road on the digital map with reference to the object road shape data and the branch shape data.

Claim 21 (original): A positional information transmission method according to Claim 20,

wherein the (C) step includes:

(c1) a first location identification step of selecting an object road candidate for the object road from the digital map with reference to the object road shape data;

(c2) a second location identification step of selecting a branch candidate for the branch from the digital map with reference to the branch shape data, with the assumption that the object road candidate is the object road;

(c3) a step of repeating the (c1) step and the (c2) step to select a plurality of combinations of the object road candidate and branch candidate; and

(c4) a step of finally selecting the object road candidate to be the object road, from the plural combinations.

Claim 22 (original): A positional information transmission method according to Claim 21,

wherein the (c4) step includes:

a step of deciding similarities between the shapes of the object road candidate and the branch candidate and the original shapes of the object road and the branch; and

a step of finally selecting the object road candidate to be the object road, on the basis of the decision result.

Claim 23 (original): A positional information transmission method according to Claim 21,

wherein, in case the branch shape data are created at the (A) step on the basis of a relative position relation, reference data to refer to the road shape data are included in the branch shape data.

Claim 24 (original): A positional information transmission method according to Claim 23,

wherein at the (c2) step, the branch candidate is selected using the reference data.

Claim 25 (original): A positional information transmission method according to Claim 21,

wherein the (c4) step includes:

(1) a step of calculating a first vector between a point of the object road and a point of the branch which are equidistance from a point of intersection between the original shapes of the object road and the branch;

(2)   a step of repeating the first vector calculating step at plural distances from the point of intersection, to acquire a plurality of first vectors;

(3)   a step of calculating a second vector between a point of the object road candidate a point of the branch candidate which are equidistance from a point of intersection between the object road candidate and the branch candidate;

(4)   a step of repeating the second vector calculating step at plural distances from the point of intersection and in every plural combinations, to acquire a plurality of second vectors; and

(5)   a step of calculating differences between the plural first vectors and the plural second vectors in every the combinations, to finally select the object road candidate of the combination the smallest in the difference, as the object road.

Claim 26 (original):   A positional information transmission method according to Claim 21,

wherein the (c4) step includes:

(1)   a step of calculating a first angle made between the object road of the original shape and the branch of the original shape;

(2)   a step of calculating a second angle between the object road candidate and the branch candidate in every combinations; and

(3)   a step calculating differences between the first angle and the second angle in every combinations, to finally select the object road candidate of the combination the smallest in the difference, as the object road.

Claim 27 (original):   A positional information transmission method according to Claim 21, further comprising:

a step of searching, after the (c1) step and the (c2) step, a branching point, at which the branch candidate branches from the object road candidate, on the digital map; and

a step of correcting the shape of the branch candidate to a shape to branch at the branching point with respect to the object road candidate.

Claim 28 (original):   A positional information transmission method according to Claim 21, further comprising:

a step of searching, after the (c1) step and the (c2) step, a branching point, at which extensions of the object road candidate and the branch candidate branch, on the digital map; and

a step of correcting the shape of the branch candidate

to the shape to branch at the branching point with respect

to the object road candidate.

Claim 29 (currently amended): A positional

information transmission method according to Claim 27 ~~or~~

~~28~~,

wherein a position of event information relating to

the object road shape data and the branch shape data is

corrected with reference to the corrected shape of the

branch candidate.

Claim 30 (currently amended): A positional

information transmission method according to ~~any of Claims~~

~~10 to 19~~ Claim 20,

wherein in the case an angle between a road

intersection with or branching from the object road and the

object road is within a predetermined angle range and the

shape of the road at a predetermined distance from the

intersecting position or the branching position is similar

to the shape of the object road, the road is set as the

branch.

Claim 31 (currently amended): A program product for

causing an information serving ~~providing~~ device to provide

positional information for a digital map, comprising:

a recording medium; and

a program recorded in the recording medium,

wherein the program causes the information serving device to execute:

the procedure for extracting object road shape data corresponding to a transmission object road, from a digital map database;

the procedure for extracting branch shape data corresponding to a branch intersecting with or branching from the object road, from the digital map database; and

the procedure for transmitting the object road shape data and the branch shape data extracted, to the outside.

Claim 32 (currently amended): A program product for causing an information ~~serving device to provide~~ application device to receive and utilize positional information for a digital map, comprising:

a recording medium; and

a program recorded in the recording medium,

wherein the program causes the information ~~serving~~ application device to execute:

the procedure for ~~extracting object road shape data corresponding to a transmission object road, from a digital map database~~ accepting object road shape data of an object

road and branch shape data corresponding to a branch

intersecting with or branching from the object road;

~~the procedure for extracting branch shape data~~

~~corresponding to a branch intersecting with or branching~~

~~from the object road, from the digital map database; and~~

~~the procedure for transmitting the object road shape~~

~~and the branch shape data extracted, to the outside.~~

the procedure for selecting an object road candidate

from a digital map database with reference to the object

road shape data;

the procedure for selecting a branch candidate from

the digital map database with reference to the branch shape

data; and

the procedure for finally selecting the object road

candidate to be the object road, with reference to the

object road candidate and the branch candidate.

Claim 33 (currently amended): A ~~program for causing~~

positional information transmission system for a digital

map, comprising: (A) an information providing device; and

(B) an information application device ~~to receive and~~

~~utilize positional information for a digital map~~,

wherein the ~~program causes the~~ (A) information

~~application~~ providing device ~~to execute~~ includes:

~~the procedure for receiving~~ an object road shape data

~~of~~ extraction unit for extracting an object road shape data

corresponding to a transmission object road, from a first digital map database; and

a branch shape data extraction unit for extracting branch shape data corresponding to a branch intersecting with or branching from the object road~~,~~ from the first digital map database, and

wherein the (B) information application device includes:

~~the procedure~~ an object road candidate selection unit for selecting an object road candidate from a second digital map database with reference to the object road shape data provided from the information providing device;

~~the procedure~~ a branch candidate selection unit for selecting a branch candidate from the second digital map database with reference to the branch shape data provided from the information providing device; and

~~the procedure~~ an object road decision unit for finally selecting the object road candidate to be the object road, with reference to the object road candidate and the branch candidate.

Claim 34 (currently amended): ~~A program for causing an~~ An information ~~application~~ providing device ~~to receive and utilize~~ for providing positional information for a digital map, comprising:

~~a recording medium, and~~

~~a program recorded in the recording medium,~~

~~wherein the program causes the information application~~

~~device to execute:~~

a digital map database;

~~the procedure for accepting~~ an object road shape data

~~of~~ extraction unit for extracting an object road ~~and~~ shape

data corresponding to a transmission object road, from a

digital map database;

a branch shape data extraction unit for extracting

branch shape data corresponding to a branch intersecting

with or branching from the object road~~,~~

~~the procedure for selecting an object road candidate~~

~~from a digital map database with reference to the object~~

~~road shape data,~~

~~the procedure for selecting a branch candidate~~, from

the digital map database ~~with reference to;~~

a shape data transmission unit for transmitting the

object road shape data and the branch shape data~~, and~~

~~the procedure for finally selecting the object road~~

~~candidate to be the object road, with reference to the~~

~~object road candidate and the branch candidate~~ extracted,

to the outside.

Claim 35 (currently amended): ~~A~~ An information application device for receiving and utilizing positional information ~~transmission system~~ for a digital map, comprising: ~~(A) an information providing device; and (B) an information application device,~~

~~wherein the (A) information providing device includes:~~

a digital map database;

~~an~~ a shape data reception unit for receiving object road shape data ~~extraction unit for extracting~~ of an object road ~~shape data corresponding to a transmission object road, from a first digital map database;~~ and

~~a branch shape data extraction unit for extracting~~ branch shape data corresponding to a branch intersecting with or branching from the object road, from the ~~first digital map database, and~~

~~wherein the (B) information application device includes:~~ outside;

an object road candidate selection unit for selecting an object road candidate from ~~a second~~ the digital map database with reference to the object road shape data ~~provided from the information providing device~~;

a branch candidate selection unit for selecting a branch candidate from the ~~second~~ digital map database with reference to the branch shape data ~~provided from the information providing device~~; and

an object road ~~decision~~ determination unit for finally

selecting the object road candidate to ~~be~~ become the object

road, with reference to the object road candidate and the

branch candidate.

Claim 36 (cancelled)

Claim 37 (cancelled)